

LISTING OF THE CLAIMS

For convenience, the following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Previously Presented) An open-source method for controlling a multimedia data generation rate, comprising:

(a) generating multimedia data in real time according to a current multimedia data generation rate and transmitting the multimedia data from a data generator to a wireless terminal;

(b) supplying transmission buffer, through which the multimedia data is transmitted, state information and a multimedia data loss rate during the transmission of the multimedia data from a first layer of the wireless terminal to a second layer of the wireless terminal;

(c) calculating a real-time multimedia data generation rate based on the transmission buffer state information and the multimedia data loss rate, and transmitting the real-time multimedia data generation rate from the second layer to the data generator; and

(d) generating multimedia data in real-time according to the real-time multimedia data generation rate and transmitting the generated multimedia data from the data generator to the wireless terminal.

2. (Previously Presented) The method as claimed in claim 1, wherein (c) comprises:

(c1) receiving the transmission buffer state information and the multimedia data loss rate from the second layer; and

(c2) calculating the real-time multimedia data generation rate based on the transmission buffer state information, by lowering a current multimedia data generation rate when the transmission buffer state information indicates that a large amount of standby multimedia data exists in the transmission buffer or the multimedia data loss rate is high or increasing the current multimedia data generation rate when the transmission buffer state

information indicates that a small amount of standby multimedia data exists in the transmission buffer or the multimedia data loss rate is low.

3. (Previously Presented) An open-source apparatus, which controls a multimedia data generation rate, comprising:

a multimedia data generation and transmission unit configured to generate multimedia data in real-time according to a current multimedia data generation rate and to transmit the multimedia data to a wireless terminal;

a buffer state and packet loss rate information reception unit in the wireless terminal, the buffer state and packet loss rate information reception unit configured to receive transmission buffer, through which the multimedia data is transmitted, state information and a multimedia data loss rate during the transmission of the multimedia data; and

a multimedia data generation rate calculation unit in the wireless terminal, the multimedia data generation rate calculation unit configured to calculate a real-time multimedia data generation rate corresponding to the transmission buffer state information and the multimedia data loss rate from the buffer state and packet loss rate information reception unit,

wherein the multimedia data generation and transmission unit is configured to receive the real-time multimedia data generation rate from the multimedia data generation rate calculation unit, to generate multimedia data in real time according to the real-time multimedia data generation rate, and to transmit the multimedia data to the wireless terminal.

4. (Previously Presented) The apparatus as claimed in claim 3, wherein the multimedia data generation rate calculation unit is configured to calculate the real time multimedia data generation rate, based on the transmission buffer state information, by lowering the current multimedia data generation rate when the transmission buffer state information indicates that a large amount of standby multimedia data exists in the transmission buffer or the multimedia data loss rate is high and increasing the current multimedia data generation rate when the transmission buffer state information indicates that

a small amount of standby multimedia data exists in the transmission buffer or the multimedia data loss rate is low.

5. (Withdrawn) A closed-source method for controlling a multimedia data generation rate, comprising:
 - (a) receiving a current multimedia data generation rate;
 - (b) receiving a permissible polling cycle and packet length;
 - (c) calculating a multimedia data generation rate corresponding to the permissible polling cycle and packet length; and
 - (d) generating multimedia data in real time according to the calculated multimedia data generation rate and transmitting the multimedia data.

6. (Withdrawn) The method as claimed in claim 5, wherein (b) comprises:
 - (b1) issuing a request for a polling cycle and packet length appropriate for the transmission of multimedia data from a wireless adaptation layer (WAL) of a wireless terminal to a WAL of a wireless access point (AP); and
 - (b2) calculating a permissible polling cycle and packet length in consideration of a current network state and transmitting the permissible polling cycle and packet length from the WAL of the wireless AP to the WAL of the wireless terminal.

7. (Withdrawn) The method as claimed in claim 5, wherein (b) comprises:
 - (b1) transmitting predetermined multimedia data generation rate information from a real-time transport control protocol (RTCP) layer of a wireless terminal to a wireless adaptation layer (WAL) of the wireless terminal and calculating a polling cycle for each session and a packet length for each calculated polling cycle based on the predetermined multimedia data generation rate information;
 - (b2) transmitting the calculated polling cycle for each session and packet length for each calculated polling cycle to a WAL of a wireless AP and issuing from the WAL of the wireless terminal to the WAL of the wireless AP a request for a permissible polling cycle for

each session and a packet length for each predetermined polling cycle, which can be permitted by the WAL of the wireless AP; and

(b3) calculating the permissible polling cycle and the permissible packet length in response to the request issued by the WAL of the wireless terminal, and transmitting calculation results from the WAL of the wireless AP to the WAL of the wireless terminal.

8. (Withdrawn) The method as claimed in claim 5, wherein (c) comprises:

(c1) receiving in a WAL of a wireless terminal the permissible polling cycle and the permissible packet length, and calculating a multimedia data generation rate corresponding to the permissible polling cycle and the permissible packet length;

(c2) transmitting the calculated multimedia data generation rate from the WAL of the wireless terminal to an RTCP layer; and

(c3) replacing the current multimedia data generation rate with the calculated multimedia data generation rate and transmitting the adjusted multimedia data generation rate to a data generator.

9. (Withdrawn) The method as claimed in claim 8, wherein in (c2), when a network is in a poor state, a polling cycle is lengthened and a packet length for each polling cycle is reduced to decrease multimedia data transmission speed, and when the network is in a good state, the polling cycle is shortened and the packet length for each polling cycle is increased to enhance multimedia data transmission speed.

10. (Withdrawn) A closed-source apparatus, which controls a multimedia data generation rate, comprising:

(a) a polling cycle and packet length information reception unit for receiving a permissible polling cycle and packet length information corresponding to a current multimedia data generation rate;

(b) a multimedia data generation rate calculation unit for calculating a multimedia data generation rate corresponding to the permissible polling cycle and packet length information;

(c) a multimedia data generation and transmission unit for generating multimedia data in real time according to the calculated multimedia data generation rate and for transmitting the multimedia data.

11. (Withdrawn) The apparatus as claimed in claim 10, wherein the polling cycle and packet length information reception unit comprises:

a WAL of a wireless terminal for issuing a request for a permissible polling cycle and packet length for transmission of multimedia data to a WAL of a wireless AP; and

a WAL of the wireless AP for responding to the request issued by the WAL of the wireless terminal by calculating a permissible polling cycle and packet length, depending on a current network state, and for transmitting the permissible polling cycle and packet length to the WAL of the wireless terminal.

12. (Withdrawn) A closed-source method for controlling a multimedia data generation rate, comprising:

(a) issuing a request for a permissible polling cycle and packet length information, which is necessary for wireless channel allocation, from a wireless adaptation layer (WAL) of a wireless terminal to a WAL of a wireless access point (AP); and

(b) responding to the request issued by the WAL of the wireless terminal by calculating a permissible polling cycle and packet length, depending on a current network state, and transmitting the permissible polling cycle and packet length from the WAL of the wireless AP to the WAL of the wireless terminal.

13. (Withdrawn) A method for controlling a multimedia data generation rate through negotiations between a wireless terminal and a wireless access point (AP), comprising:

(a) receiving a current multimedia data generation rate;
(b) calculating a polling cycle for each session and a packet length for each polling cycle, corresponding to the current multimedia data generation rate, and issuing a request for a permissible polling cycle for each session and a permissible packet length for each permissible polling cycle to a WAL of the wireless AP; and

(c) receiving the permissible polling cycle for each session and the permissible packet length for each permissible polling cycle from the WAL of the wireless AP and adjusting the current multimedia data generation rate depending on the permissible polling cycle for each session and the permissible packet length for each permissible polling cycle.

14. (Withdrawn) A method for controlling a multimedia data generation rate through negotiations between a wireless terminal and a wireless access point (AP), comprising:

(a) receiving a request for a permissible polling cycle and packet length issued by a wireless adaptation layer (WAL) of the wireless terminal; and
(b) calculating a predetermined polling cycle for each session and a predetermined packet length for each predetermined polling cycle, which can be accommodated at a given moment in consideration of a current network state and transmitting calculation results to the WAL of the wireless terminal.

15. (Original) A computer-readable recording medium on which a program enabling the method of claim 1 is recorded.

16. (Withdrawn) A computer-readable recording medium on which a program enabling the method of claim 5 is recorded.

17. (Previously Presented) A method for controlling a multimedia data generation rate, comprising:

determining a current wireless channel state for a wireless terminal; and

generating multimedia data in real time according to a calculated multimedia data generation rate and transmitting the generated multimedia data, wherein:

when the current wireless channel state is variable, calculating the multimedia data generation rate based on transmission buffer state information and multimedia data loss rate, and

otherwise, calculating the multimedia data generation rate based on a permissible polling cycle and packet length.

18. (Previously Presented) The method as claimed in claim 17, wherein calculating the multimedia data generation rate based on transmission buffer state information and multimedia data loss rate comprises:

generating multimedia data in real time according to a current multimedia data generation rate and transmitting the multimedia data from a data generator to a first layer of the wireless terminal; and

supplying the transmission buffer, through which the multimedia data is transmitted, state information and the multimedia data loss rate during the transmission of the multimedia data from a second layer in the wireless terminal to a third layer in the wireless terminal; and

transmitting the multimedia data generation rate from the third layer to the data generator.

19. (Previously Presented) The method as claimed in claim 17, wherein calculating the multimedia data generation rate based on a permissible polling cycle and packet length comprises:

receiving the current multimedia data generation rate; and
receiving the permissible polling cycle and packet length.

20. (Previously Presented) The method as claimed in claim 19, wherein receiving the permissible polling cycle and packet length includes receiving from an access point.